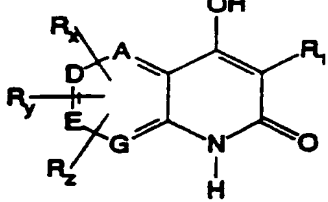


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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : C07D 471/04, A61K 31/44</p>	<p>A3</p>	<p>(11) International Publication Number: WO 96/22990 (43) International Publication Date: 1 August 1996 (01.08.96)</p>
<p>(21) International Application Number: PCT/US95/16575 (22) International Filing Date: 21 December 1995 (21.12.95) (30) Priority Data: 08/379,699 27 January 1995 (27.01.95) US 08/466,043 6 June 1995 (06.06.95) US (71) Applicants: STATE OF OREGON, acting by and through THE OREGON STATE BOARD OF HIGHER EDUCATION, acting for and on behalf of THE OREGON HEALTH SCIENCES UNIVERSITY AND THE UNIVERSITY OF OREGON, EUGENE, OREGON [US/US]; University of Oregon, Riverfront Research Park, Eugene, OR 97403-1238 (US). ACEA PHARMACEUTICALS, INC. [US/US]; 213 Technology Drive, Irvine, CA 92718 (US). (72) Inventors: KEANA, John, F., W.; 3854 Onyx Street, Eugene, OR 97405 (US). CAI, Sui, Xiong; 12 Salinas, Foothill Ranch, CA 92610 (US). MARTIN, Vladimir, V.; 2555 Portland Street, #6, Eugene, OR 97405 (US). ZHOU, Zhang-Lin; Department of Chemistry, University of Oregon, Eugene, OR 97403 (US). NAVRATIL, James, M.; 1656 McKinley Court, Eugene, OR 97402 (US).</p>		<p>(74) Agents: ESMOND, Robert, W. et al.; Sterne, Kessler, Goldstein & Fox P.L.L.C., Suite 600, 1100 New York Avenue, N.W., Washington, DC 20005-3934 (US). (81) Designated States: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 10 October 1996 (10.10.96)</p>
<p>(54) Title: AZA AND AZA (N-OXY) ANALOGS OF GLYCINE/NMDA RECEPTOR ANTAGONISTS</p>		
<p>(57) Abstract</p>		
<p>Methods of treating or preventing neuronal loss associated with stroke, ischemia, CNS trauma, hypoglycemia and surgery, as well as treating neurodegenerative diseases including Alzheimer's disease, amyotrophic lateral sclerosis, Huntington's disease, and Down's syndrome, treating or preventing adverse consequences of the hyperactivity of the excitatory amino acids, as well as treating anxiety, chronic pain, convulsions, inducing anesthesia, and treating or preventing opiate tolerance are disclosed by administering to an animal in need of such treatment or prevention a substituted or unsubstituted pyridine and pyridine (N-oxide) analogs of 4-hydroxydihydroquinolones, tetrahydroquinoline-trione-oximes and quinoxalones of Formula (I), tautomers and pharmaceutically acceptable salts thereof, which have high binding to the glycine receptor or tautomers, pharmaceutically acceptable salts or N-oxides thereof; wherein A, D, E, G, R, R₁, X, Y, Z are as defined in the description.</p>		 <p style="text-align: right;">(I)</p>

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International Application No
PCT/US 95/16575

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT		Relevant to claim No.
Category *	Citation of document, with indication, where appropriate, of the relevant passages	
Y	WO 94 27605 A (STATE OF OREGON) 8 December 1994 cited in the application see claim 1 ---	1-15, 23-39
Y	WO 94 20470 A (STATE OF OREGON) 15 September 1994 cited in the application see claim 1 ---	1-15, 23-39
Y	US 5 268 378 A (BAKER) 7 December 1993 cited in the application see claim 1 ---	1-15, 23-39
Y	US 5 252 584 A (CARLING) 12 October 1993 cited in the application see claim 1 ---	1-15, 23-39
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- X- document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- Y- document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

'&' document member of the same patent family

Date of the actual completion of the international search

29 April 1996

Date of mailing of the international search report

23. 08. 96

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Authorized officer

GETTINS M.P.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 95/16575

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>EP 0 459 561 A (MERCK SHARP & DOHME LTD.) 4 December 1991 cited in the application see claim 1 -----</p>	<p>1-15, 23-39</p>

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 95/ 16575

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims: 1-15, 23 and 24, 26-39 in so far as they relate to compounds of the said claims (I & II)
2. Claims: 16, 17 and 25, 26-29 when relating to compounds III
3. Claims: 18 and 22, 26-29 when relating to compounds IV

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 95/16575

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